



Flexines

Energy Management
for the
Consumer

Smart Homes 2010, Vienna

Wim Timmerman

Hanze University Groningen of Applied Sciences





Flexines



People in power!



Flexines

People in power!

Flexines Project

Participants

- Hanze University
- University of Groningen
- KEMA
- TNO
- ECN
- GasTerra
- Icopal
- Energy Valley
- RenQi



Flexines Project

Funding

- Province of Groningen
- Town of Groningen
- Ministry of Economic Affairs
- European Union



Naast de provincie en de gemeente Groningen, wordt dit project medegefinancierd door het Ministerie van Economische zaken en het Europees fonds voor regionale ontwikkeling

Flexines Project

Presentation outline

- People in Power
- Flexines System Concept
- Algorithms
- Current status
- Future Iterations
- Questions and discussion



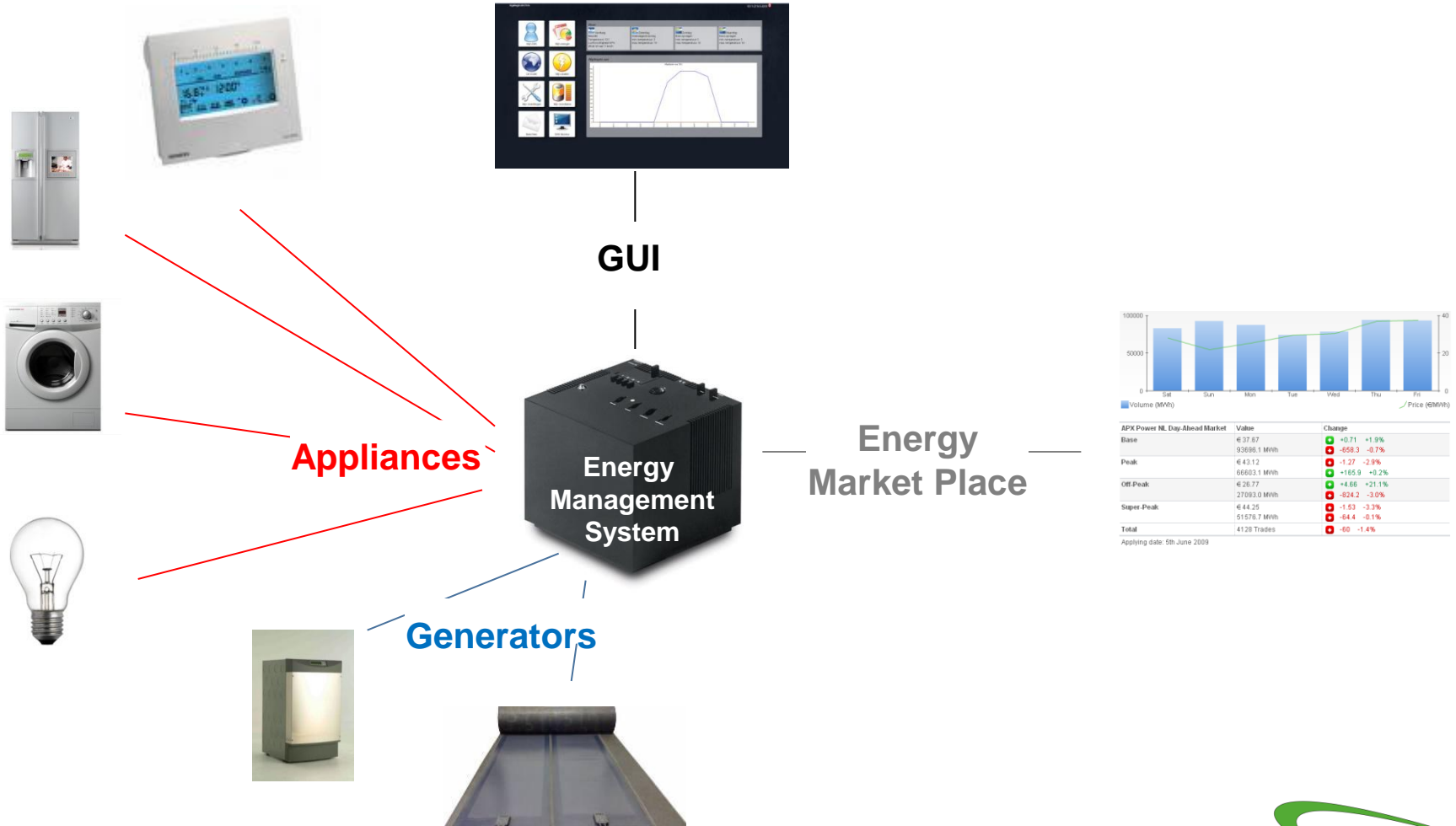
Starting point is:

- Consumers' requirements:
 - Convenience parameters
 - Flexibility range
 - Reward and budget demands
- Requirements translated into system functionalities



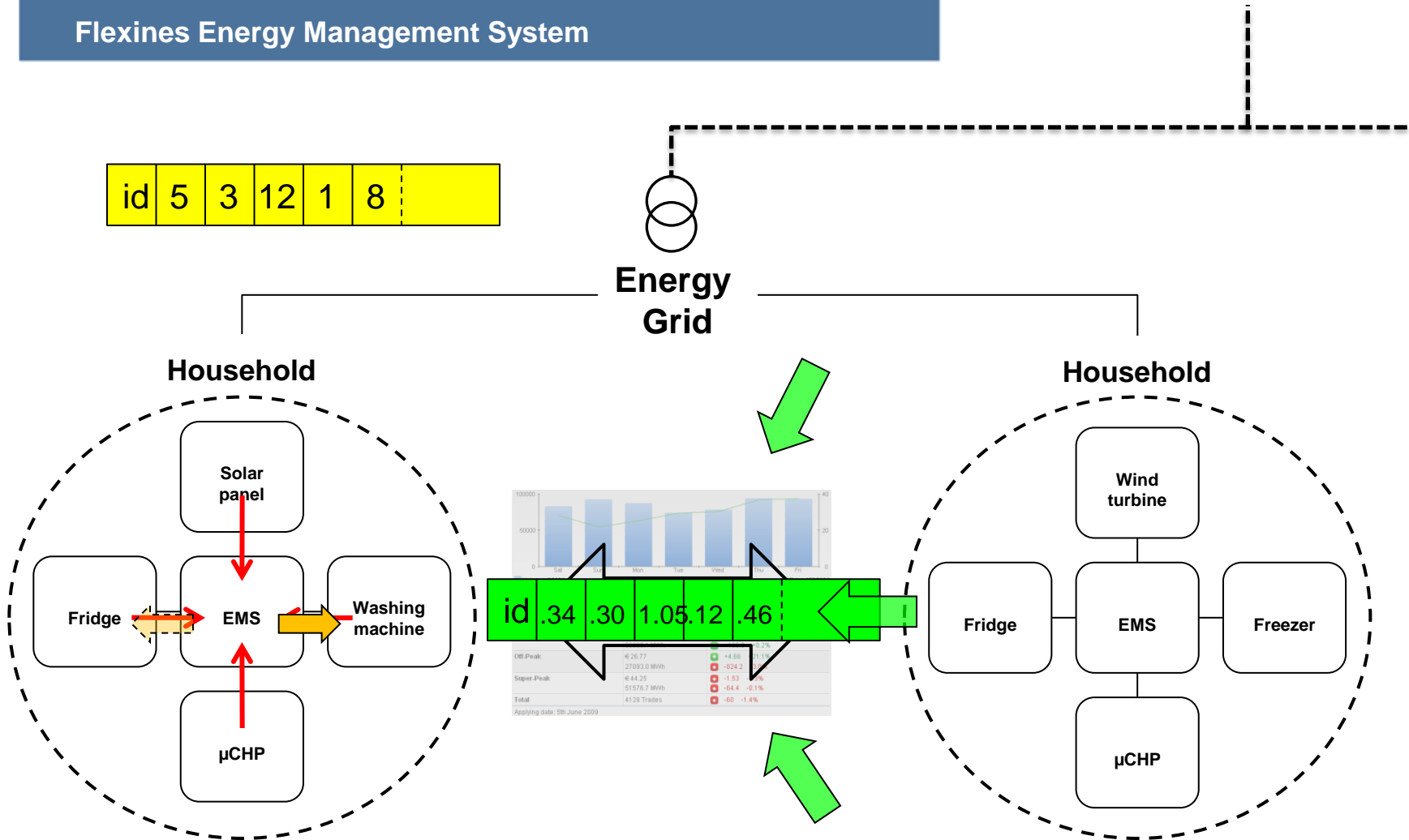
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System concept



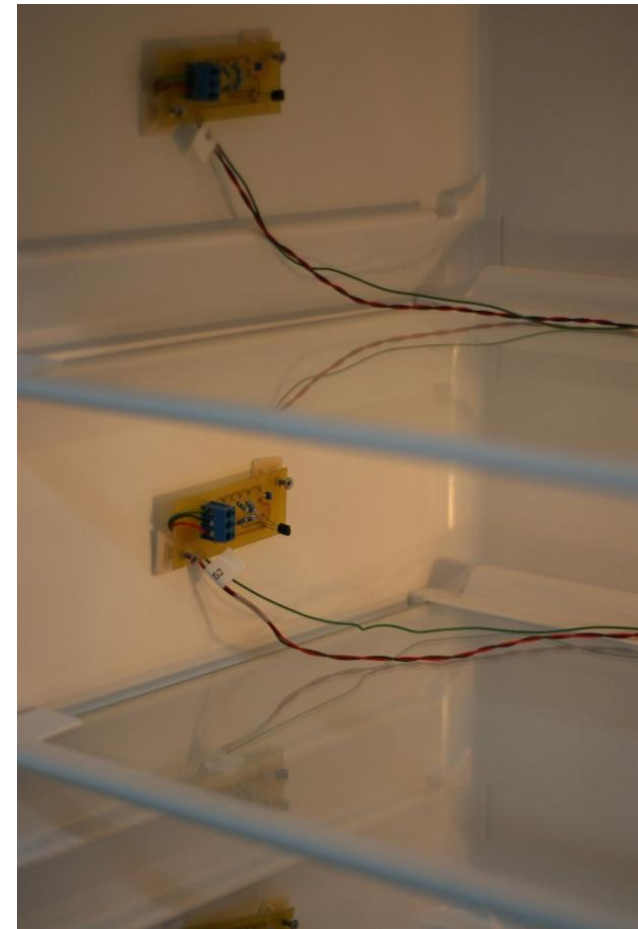
EMS Concept

Flexines Energy Management System

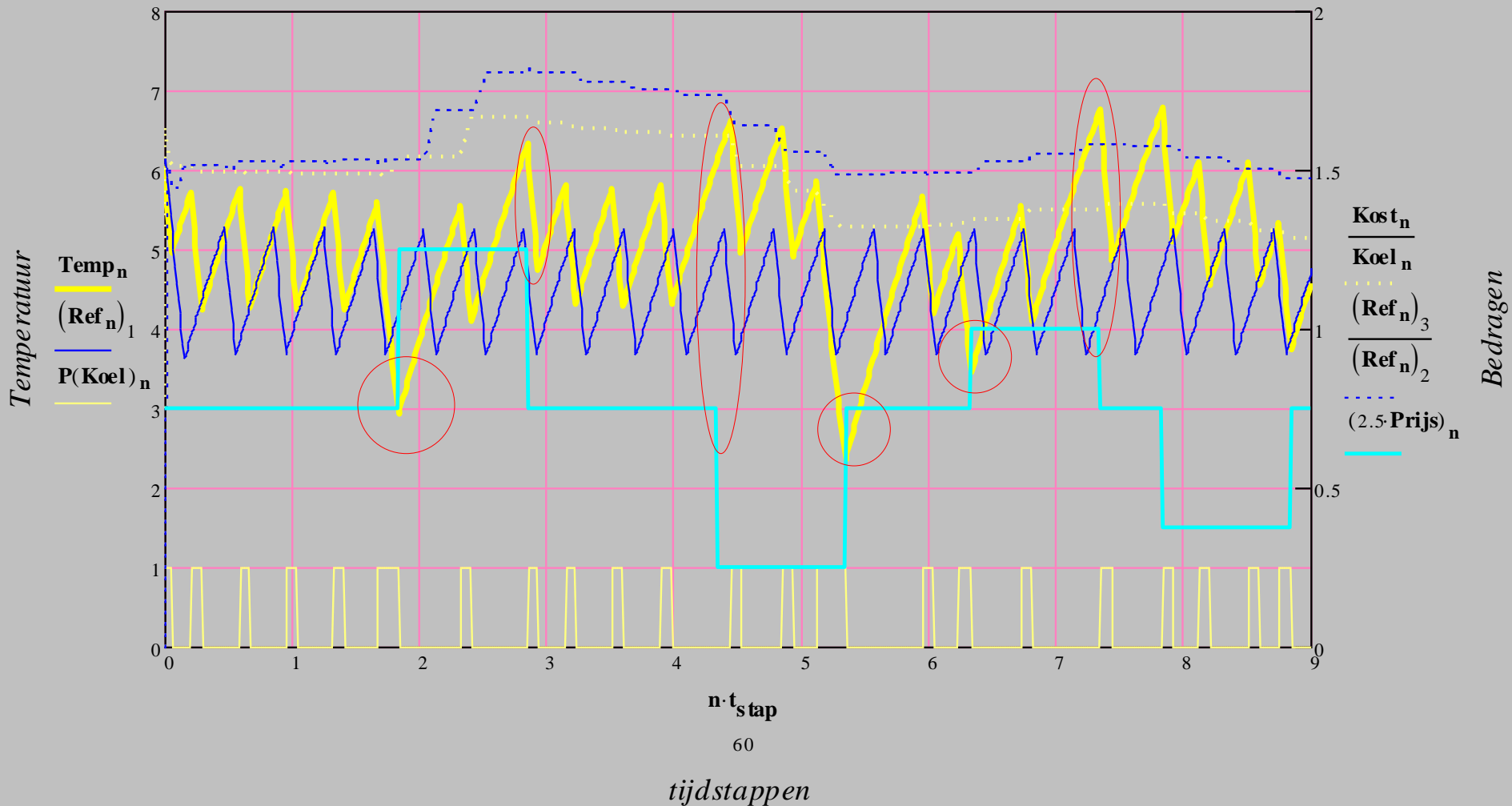


EMS concept

Demonstrator



Eindtemperatuur dichtsbij T-eind



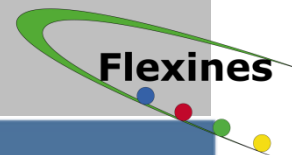
- Traditional control

- Price profile

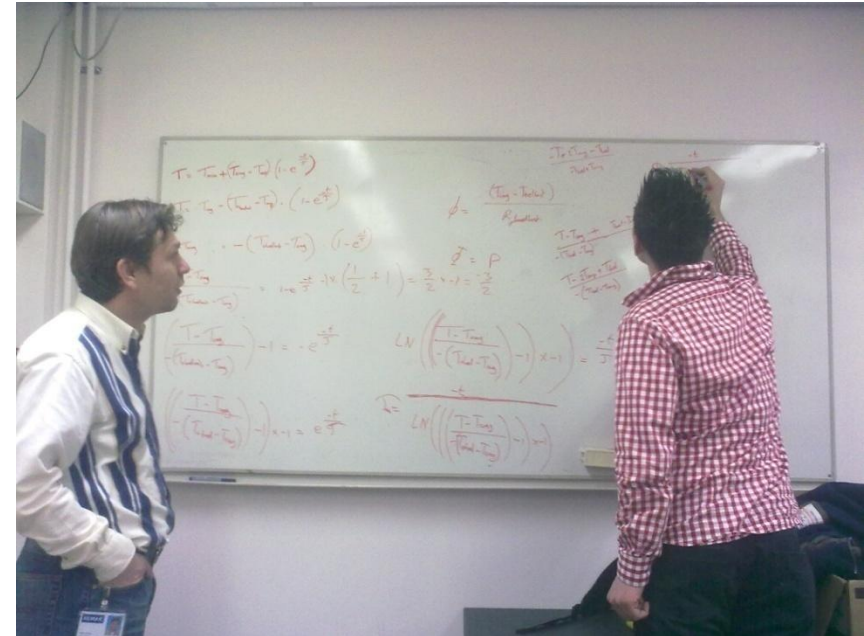
- cost optimized control (ca. 10% savings)

- switch on/off (below)

- point of attention



- Prediction
 - Time shift
 - Buffering
- Matching
- Time shifting & buffering
- Cherry Picking



Current status

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- Ongoing requirements research
- Demonstrator
 - User interface
 - Fridge and washing machine
 - μ CHP
- PV panels installed
- 1 working EMS
- First algorithm with matching and time shift
- 5 PhD projects



Future Iterations

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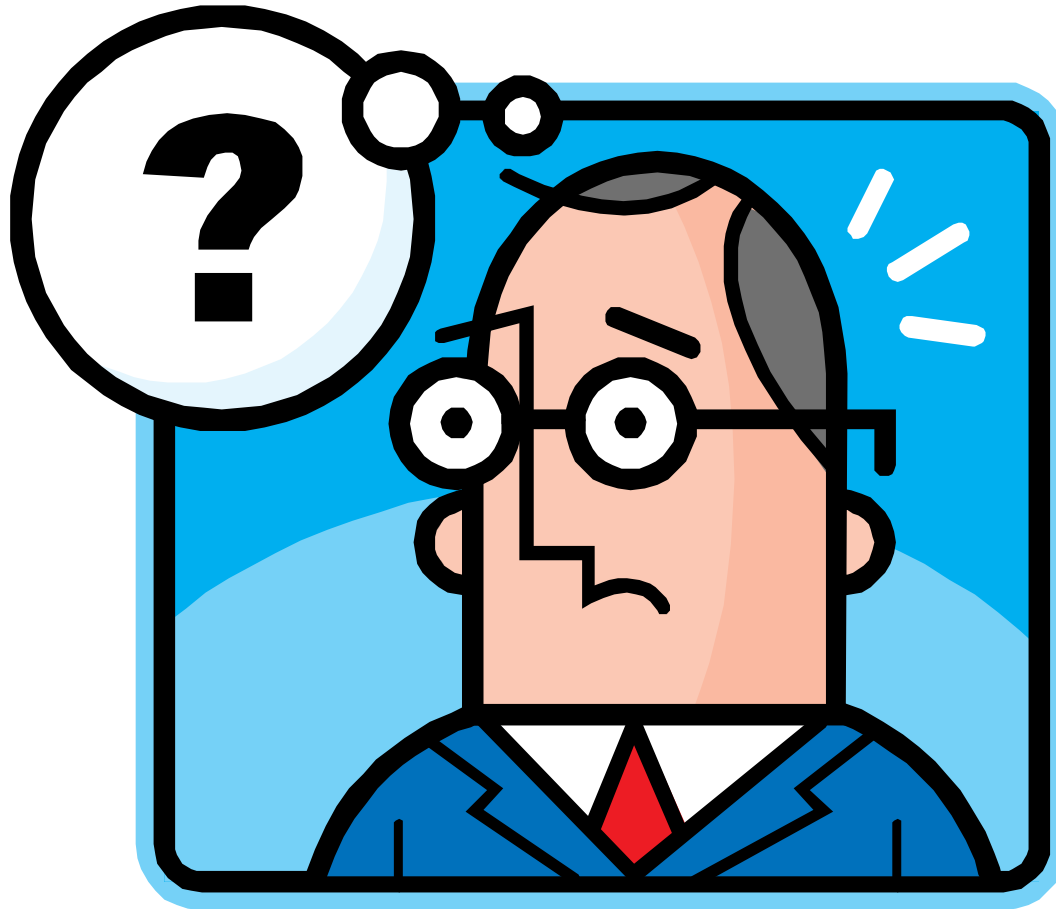
- Combine Electricity, Gas, Heat, Solar and Wind with Time shifting algorithms
- Proof of Concept with 3 EMS
- Simulation of Virtual Power Plant
- (P2P) Energy Trading
- Interoperability
- Open Standards
- Security & Identity Management
- Business case



Questions?



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APPLIED SCIENCES





More info:

www.flexines.org

Wim Timmerman

Tel: +31 (0)50 595 4045

Mob: +31 (0)6 1463 7701

E-mail: w.h.timmerman@pl.hanze.nl